

Millennium Power Partners, L.P.

Addendum

Notes and Comments for Sewer Connection Permit Application

BWP IW 38 - Transmittal Number X005431

Permit No. W034602

Section B, Item 6a: Metals, Asbestos, Cyanide, Phenols

The values reported in this section are "before discharge" and are from IPP POTW required sampling of the cooling tower discharge conducted in 2007 and are averaged concentrations values. The incoming WWTP effluent/Quinebaug river water used for cooling is recycled and concentrated in the cooling tower. Blow down discharges do contain low concentrations of metals from time to time but metals are not directly added as cooling tower maintenance chemicals as restricted in 40 CFR 423.17. Arsenic, Chromium and Copper are components of the preservative in the cooling tower structure wood and from time to time may be detected in the waste stream.

Section C, Item 18: Provide the following information about the Massachusetts Registered Professional Engineer (MAPE) who reviewed, stamped, and signed your engineering plans

Since the power plant cooling tower was designed and constructed in 1999 prior to being classified as an IWPS in 2006, the plans were not stamped by a MAPE and as such this section was intentionally left blank.

For review purposes only to the extent that the piping and instrument diagram provided with this application is correct and as built, Millennium Power has had Joel Kasper, MAPE, #35093, review this diagram for its accuracy.

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IWPS Overview

Millennium's pretreatment system is designed to control pH at a predefined level and to curtail discharge in the event of excursions. A pH probe is located at the outfall of the cooling tower and just prior to the blowdown discharge structure. It is continuously monitored. Under normal operations sulfuric acid is added to stabilize pH at a set point of 7.9 which has been optimally set to minimize the usage of additional treatment products to control proper cooling tower chemistry.

The IPWS system is operated and maintained in accordance with the site specific O&M manual for the cooling tower. As part of this program the pH probe is calibrated weekly in addition to the continuous monitoring system. The continuous monitoring system is set up with alarms to warn of pH excursions (within permit limits of 5.5 to 9.0). In the event that permit limits are approached the IWPS will automatically close (at 6.0 and 8.8) the level control valve located just prior to the discharge manhole in order to prevent the potential of a permit exceedance.

Exhibits

- A) Design and Operations Outline
- B) Process Flow Diagram
- C) Process and Instrumentation Diagram

Cooling Tower Design and Operations Outline

Background:

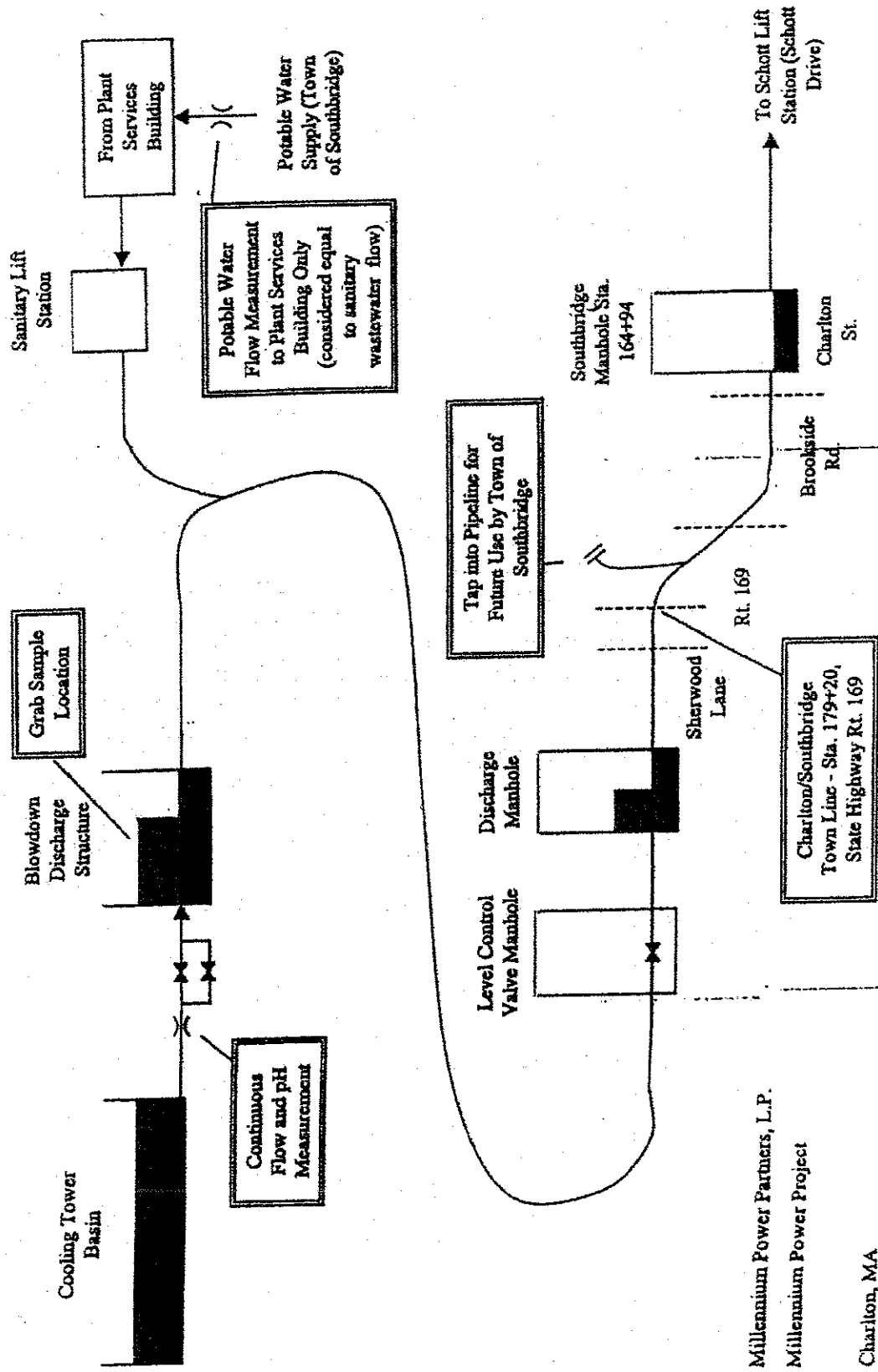
- 5-cell wet mechanical draft cooling tower
 - Uses evaporation to cool circulating water by drawing air through water cascading through cooling tower
 - Provides cooling water for several processes
 - Steam turbine condenser
 - Closed cooling water system
 - Various heat exchangers
 - Quench water for CT drain tank (returns to the cooling tower)
 - Supply water from several sources
 - Southbridge Wastewater Treatment Facility – primary source but can be restricted due to maintenance issues, high flows to the SWWTF
 - Quinebaug River – backup source, significantly different composition compared to the water supply from the SWWTF
 - Miscellaneous plant drains – small volumes compared to the other sources
 - Sources are not chemically treated at the plant prior to use
 - Cooling Tower Treatment Program Design
 - Designed to:
 - Account for the varied water sources
 - To maximize cooling tower efficiency and heat transfer by protecting against corrosion and deposition within the cooling circuits and cooling tower
 - To minimize the use and quantity of treatment products in an environmentally sound and cost-effective manner to accommodate changing water sources to minimize “quality” excursions.
 - To be consistent with TURA planning requirements (minimize usage and storage of treatment chemicals.
 - Prevents scale deposition in piping and heat exchangers
 - Minimizes corrosion of piping
 - Controls microbiological fouling
 - Tight pH control to maintain most effective and economical usage of maintenance chemicals

Process Control Parameters:

- Sulfuric acid is added to adjust pH as required (based on make-up supply) within a tight band to minimize chemical use
- Sodium hypochlorite is injected based on an ORP meter to maintain between 0.2 and 0.5 free chlorine
- Corrosion inhibitors injection rate is adjusted based on measured corrosion rate
- Phosphate injection rate is adjusted to maintain a residual to control corrosion
- Blowdown is adjusted to ensure a maximum conductivity of 3000 uS/cm, which is equivalent to 6 cycles of concentration based on silica. Silica is used as a basis for cycling up the tower since silica is not a constituent of any maintenance chemical.

* Note: As a Process Safeguard, the distributed control system is designed to monitor and interrupt the blowdown flow when pH falls to pH 6.5 or rises to pH 8.5 (note: the control does not endeavor to control final pH.

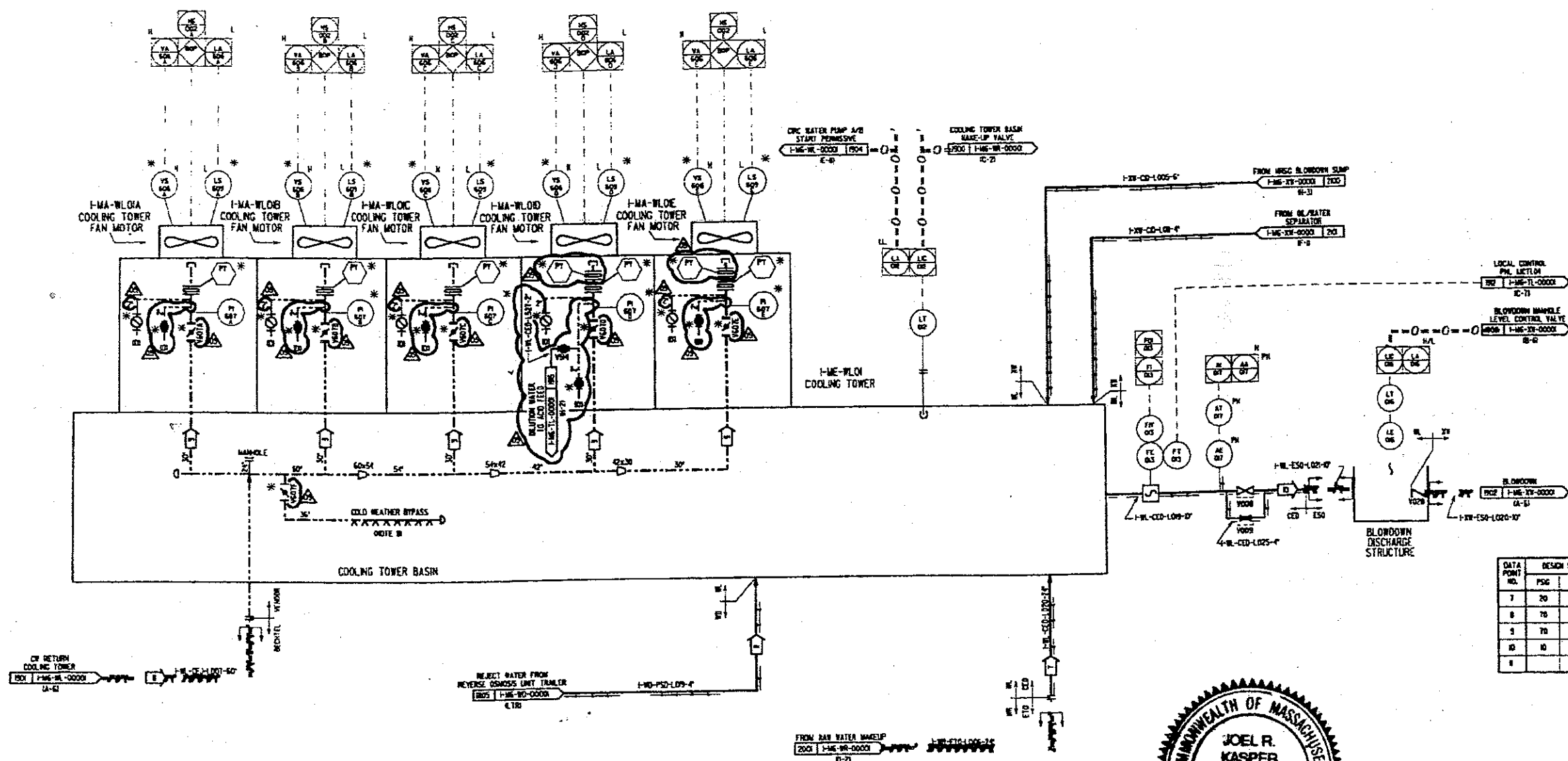
Exhibit B: Sketch of Industrial Complex



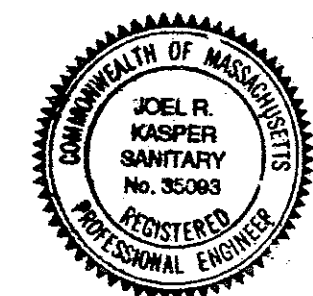
Millennium Power Partners, L.P.
Millennium Power Project

Charlton, MA

NOTES:
1. FOR NOTES SEE DRAWING I-M6-WL-0000



DATA POINT NO.	DESIGN DATA		OPERATING DATA		FLOW	NOTES
	PSIG	°F	PSIG	°F	OPW	
7	20	100	5	60	250	
8	70	220	20	80	57.625	
9	70	220	20	80	65.525	
10	10	50	1.3	80	500	
11						LATER



Reviewed By:
Joel R. Kasper
7/7/08

NO.	DESCRIPTION	DATE	BY	CHKD	APP'D
1	DESIGNED FOR CONSTRUCTION, SEE REV. 14 DESCRIPTION OF CHANGES	JUN 04	JK		
2	REVIEWED FOR CONSTRUCTION, SEE REV. 14 DESCRIPTION OF CHANGES	JUN 04	JK		
3	DESIGNED FOR CONSTRUCTION, SEE REV. 14 DESCRIPTION OF CHANGES	JUN 04	JK		
4	REVIEWED FOR CONSTRUCTION, SEE REV. 14 DESCRIPTION OF CHANGES	JUN 04	JK		
5	DESIGNED FOR CONSTRUCTION, SEE REV. 14 DESCRIPTION OF CHANGES	JUN 04	JK		
6	REVIEWED FOR CONSTRUCTION, SEE REV. 14 DESCRIPTION OF CHANGES	JUN 04	JK		

BECHTEL CALIFORNIA, MARYLAND		
MILLENNIUM POWER PARTNERS, L.P. MILLENNIUM POWER PROJECT		
PIPING & INSTRUMENT DIAGRAM CIRCULATING WATER SYSTEM		
JOB NO.	DRAWING NO.	REV.
23951	I-M6-WL-00002	05

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